

REMARKS

Claims 23-35 are rejected under 35 U.S.C. § 112, first paragraph, for the reasons noted in the official action. The inadequate written description rejection is acknowledged and respectfully traversed in view of the following remarks.

The Examiner specifically alleges, with respect to claims 23-33, that the present specification does not support: 1) carrying out the downshifting operation "until the speed is below the threshold speed" and 2) terminating the second downshifting operation without engaging the clutch. In response, the Applicant appropriately amended claim 23 to more clearly recite that: 1) a threshold speed is attained and must be fallen below prior to carrying out the downshifting operation, and 2) termination of the downshifting operation occurs when the clutch is re-engaged.

Specifically, amended claim 23 now recites the steps of:

carrying out a first downshifting operation during a coasting mode;

terminating the first downshifting operation by engagement of a clutch located between a vehicle drive motor and the transmission;

and, *if a speed of the vehicle falls below a predetermined threshold speed*, carrying out a second downshifting operation by downshifting at least two gears without re-engaging the clutch; and

terminating the second downshifting operation by engaging the clutch located between the vehicle drive motor and the transmission. (Emphasis added).

It is respectfully submitted that the subject matter of claim 23 now more clearly recites the novel aspects of this invention of the clutch being maintained in a disengaged state (i.e., not re-engaged with the transmission between subsequent downshifts) when the vehicle motor speed is below a desired threshold. Further, the second downshift operation is completed (i.e., terminated) by re-engaging the clutch. As the Examiner points out, this is clearly described in the specification, at least at paragraphs [18] and [19]:

Accordingly, counter to the state of the technology, below the stated threshold value for speed, additional downshifting can take place. In the case of these so-called comfort downshifts, however, the clutch is not closed after the engagement of a new gear, but is left in an open state. When this is done, the negative effect of the motor braking action being too strong, which is known to the state of the technology, does not occur. In this operation, the gear jumps were fortunately chosen with consideration given to the vehicle delay which,

10/566,620

for example, is determined by the measurement of the change of the transmission output shaft speed of rotation.

If the driver desires to continue driving and signals this intent, after a positive drive torque to the transmission control apparatus by means of a release of the power control member of the vehicle, then the clutch is immediately closed. Since the gear stage, which is already in keeping with the speed of driving, is already engaged, the driver experiences the desired vehicle acceleration without any marked time delay.

From the above disclosure, and in light of amended claim 23, the subject matter of the presently claimed invention is now believed to be sufficiently clear to one of ordinary skill in the art. Accordingly, the raised enablement rejection, under 35 U.S.C. § 112, first paragraph, is believed to be overcome and should be withdrawn at this time.

With respect to claims 34 and 35 in accordance with the Examiner's conclusion, the present specification does not support: 1) carrying out the downshifting operation "until the speed is below the threshold speed" and 2) the downshifts in the second shifting operation are not of the identical gears of the above the first downshifting operation. Claim 34 and 35 are appropriately revised to more clearly recite that: 1) the threshold speed must be fallen below prior to carrying out the second downshifting operation and 2) the first and second downshifting operations comprise different gear shifts.

Specifically, amended claim 34 recites the steps of:

carrying out a first downshifting operation during a coasting mode of the automatic transmission from a higher gear to a lower gear by

disengaging a clutch located between the automatic transmission and a vehicle engine;

shifting from the higher gear to the lower gear in the automatic transmission; and

terminating the first downshifting operation by engaging the clutch located between the automatic transmission and the vehicle engine so that engine compression influences the vehicle;

and if the vehicle falls below a threshold speed;

carrying out a second downshifting operation of the automatic transmission by

disengaging the clutch located between the automatic transmission and the vehicle engine;

downshifting from the lower gear to a first next lower gear in the automatic transmission and subsequently downshifting from the first next

10/566,620

lower gear to a second next lower gear while maintaining the clutch, located between the automatic transmission and the vehicle engine, disengaged during the second downshifting operation;

determining a driver desire for positive drive torque; and
terminating the second downshifting operation by engaging the clutch. (Emphasis added).

It is respectfully submitted that the subject matter of claim 34 now more clearly recites the novel aspects of this invention of maintaining the clutch in a disengaged state (i.e., not closed, between downshifts when the speed is below a desired threshold). Further, the subject matter of claim 34 more clearly recites the second downshifting operation comprises different gear shifts from the first downshifting operation. As the Examiner points out, this is clearly described in the specification at least in paragraph 18:

Accordingly, counter to the state of the technology, below the stated threshold value for speed, additional downshifting can take place. In the case of these so-called comfort downshifts, however, the clutch is not closed after the engagement of a new gear, but is left in an open state. When this is done, the negative effect of the motor braking action being too strong, which is known to the state of the technology, does not occur. In this operation, the gear jumps were fortunately chosen with consideration given to the vehicle delay which, for example, is determined by the measurement of the change of the transmission output shaft speed of rotation.

From this disclosure, and in light of the amended claim 34, the subject matter of the presently claimed invention, as recited in claims 34 and 35, is believed to be sufficiently clear to one of ordinary skill in the art and therefore the enablement rejection, under 35 U.S.C. § 112, first paragraph, is overcome and should be withdrawn at this time.

Lastly, claim 33 is canceled in favor of new claim 36 which recites similar subject matter to claims 23 and 34. Accordingly, the Applicant respectfully submits claim 36 is fully supported by the specification as originally filed and this claim is also in a condition for allowance.

It is to be appreciated that the process of downshifting "at least two gears," without reengaging the clutch, depends upon the type of transmission in which the method is carried out and the degree to which the speed of the vehicle falls below the predetermined threshold speed. For example for a 6 speed transmission, the "downshifting of at least two gears" may entail a downshift from fifth gear to fourth gear and then from fourth gear to third gear. However, in a 16 speed transmission for example, the "downshifting of at least two gears" may entail a downshift from tenth gear to eighth gear and then from eighth gear to sixth gear. The important aspect of the present invention is that the speed of the vehicle must first falls below a predetermined threshold speed and this triggers the downshifting operation of at least two gears, without re-engaging the clutch, which is terminated by reengaging the clutch located between the vehicle drive motor and transmission.

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- 7 -

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If any further amendment to this application is believed necessary to advance prosecution and place this case in allowable form, the Examiner is courteously solicited to contact the undersigned representative of the Applicant to discuss the same.

In view of the foregoing, it is respectfully submitted that the raised rejection(s) should be withdrawn and this application is now placed in a condition for allowance. Action to that end, in the form of an early Notice of Allowance, is courteously solicited by the Applicant at this time.

The Applicant respectfully requests that any outstanding objection(s) or requirement(s), as to the form of this application, be held in abeyance until allowable subject matter is indicated for this case.

In the event that there are any fee deficiencies or additional fees are payable, please charge the same or credit any overpayment to our Deposit Account (Account No. 04-0213).

Respectfully submitted,



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1/16/09 1:57 PM

- 8 -